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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,716	07/10/2003	Momoe Adachi	09792909-5650	2623

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EXAMINER

LEE, CYNTHIA K

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 10/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/616,716	ADACHI ET AL.	
	Examiner	Art Unit	
	Cynthia Lee	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is responsive to the amendment filed on 8/10/2006. Claims 19-21 have been added. Claims 1-21 are pending.

The 35 USC 112, 2nd rejection has been withdrawn.

The Claim Objection has been withdrawn.

Applicant's prior art arguments have been fully considered and are persuasive and 35 USC 102 rejection has been overcome. However, upon further consideration, the instant claims are rejected under new grounds of rejections and thus, claims 1-21 are finally rejected for reasons of record and for reasons necessitated by applicant's amendment.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 5 and 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The mixture of bis(1,2-benzene diolate(2-)-O,O')lithium borate and bis(1,2-benzene diolate(2-)-O,O')lithium phosphate in claim 5 is not supported by the original disclosure.

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Claim 21 is not supported by the original disclosure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto (WO00/33403) (equivalent document US 6824920 relied upon for English translation), in view of Fujita (WO 01/2251⁹~~X~~) (equivalent document US 6884546 relied upon for English translation).

Refer to the US document for corresponding citations herein below. Iwamoto discloses a battery comprising a cathode, an anode, and an electrolyte. The negative and positive electrodes are capable of intercalating and de-intercalating lithium (applicant's light metal). The electrolyte contains bis(1,2-benzene diolate(2-)-O,O')lithium borate (applicant's claims 1-5). The anode further contains graphite materials (applicant's claims 7, 8, and 9). The anode further contains tin, silicon, and zinc (applicant's claims 10 and 11). The electrolyte contains LiPF_6 , LiBF_4 , $\text{LiN}(\text{CF}_3\text{SO}_2)_2$, $\text{LiN}(\text{C}_2\text{F}_5\text{SO}_2)_2$, $\text{LiC}(\text{CF}_3\text{SO}_2)_3$, and LiClO_4 (applicant's claims 13-18). The electrolyte contains a polymeric compound (applicant's claim 12). Refer to 5:4-60, 6:60-65, 9:50-55, 10:5-10, 55-65.

Iwamoto does not disclose that the light metal is deposited on the anode at an open circuit voltage lower than overcharge voltage (instant claim 1), wherein the charge

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capacity of the cathode is larger than the capacity component of the anode obtained by insertion and extraction of light metal (instant claim 21). Iwamoto does not disclose a battery wherein a ratio A/B is at least 0.05 to at most 3, A being the capacity component obtained by deposition and dissolution of light metal and B being the capacity component obtained by insertion and extraction of light metal (instant claim 20).

However, Fujita teaches a negative electrode containing negative electrode material capable of occluding/releasing lithium in an ionic state and thereby, lithium metal precipitates (applicant's deposition and dissolution) in the negative electrode in a state where the open circuit voltage is lower than the overcharge voltage. In other words, lithium is occluded in an ionic state in a negative electrode material capable of occluding/releasing lithium in the beginning of charging and then lithium metal precipitates on the surface of the negative electrode material thereafter during charging. The amount of precipitation of lithium metal is preferable to be from 0.05 to 3.0 times, both inclusive, the ability of charging capacity of the negative electrode material capable of occluding/releasing lithium. Thereby, high energy density and an excellent cycle characteristic can be obtained. See Abstract and 17:65-18:30, 19:37-45. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Iwamoto's battery with the teachings of Fujita for the benefit of improving the overall performance of the battery by depositing lithium after charging.

The charge capacity of the cathode is necessarily larger than the capacity component of the anode obtained by insertion and extraction of light metal because the

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anode capacity component is made up of the insertion and extraction capacity and deposition and dissolution capacity (instant claim 21).

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ckl

Cynthia Lee

Patent Examiner


SUSY TSANG-FOSTER
PRIMARY EXAMINER